REMARKS

Claims 1-51 are in the application. Reconsideration and reexamination are respectfully requested.

1. Rejections Under 35 U.S.C. §103(a)

Claims 1-5, 7, 13-17 and 21 -- rejected under 35 U.S.C. §102(e) as being anticipated by the reference art patent no. 6,331,858 to Fisher ["Fisher"] in the previous, first, Office Action of July 15, 2003 -- were rejected under 35 U.S.C. §103(a) as being unpatentable over the reference art of Fisher in view of the reference art patent no. 6,323,011 to Schein ["Schein"].

Claims 6 and 8-11 were rejected under 35 U.S.C. §103(a) as being unpatentable over the reference art of Fisher in view of Schein further in view of the reference art patent no. 6,329,994 of Gever, et al. ["Gever, et al."].

Claim 12 is rejected under 35 U.S.C. §103(a) as being unpatentable over the reference art of Fisher, Schein and Gever, et al. further in view of the reference art patent no. 6,553,418 to Izumitani ["Izumitani"].

Claims 18-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over the reference art of Fisher and Schein in view of Izumitani.

Claims 22-26, 28-34, 36-40, 43-49 and 51 were rejected under 35 U.S.C. §103(a) as being unpatentable over the reference art of Fisher and Schein in view of the reference art patent no. 6,414,676 to Miodonski ["Miodonski"].

Claim 35 was rejected under 35 U.S.C. §103(a) as being unpatentable over the reference art of Miodonski further in view of the reference art of Ringland, et al.

2. Request for Examiner Interview

First in response to the present Office Action in order that it should not "get lost" in the volume of the following pages, an Examiner Interview is requested, tentatively for 1:00 P.M. local Virginia time (or more generally in the afternoon), on Monday, May 3, 2004. Applicant will serve as his own representative without presence of Applicant's undersigned Attorney of Record. Applicant will call the Examiner in advance of the Interview to confirm any appointment by then made.

Applicant is at the Examiner's disposal for any desired shift in date or in time, which confirmation or shift may be arranged by communication directly with Applicant Bruce Carlin, particularly by telephone to 619 523 9260 not earlier than 8:00 A.M. P.D.S.T. (meaning later than 11:00 A.M. at the PTO).

Applicant does not request, nor, in consideration of the following remarks does Applicant believe he needs, an interview so as to argue the patentability of his invention with the Examiner. Instead, with the aid of the two photographs that are enclosed, and two portable computers representing the client and server sides of a demonstration version of Applicant's software-based system, Applicant stands ready to help the Examiner better understand Applicant's invention, and the patentable distinction thereof **as claimed**. (Applicant is fully well aware that the Examiner is examining Applicant's **claims**, and stands ready to explain the considerable non-trivial operation(s), and effect(s), of his invention in consideration of such **claims**.)

The Examiner is asked to respond (by any convenient means) to this request for interview prior to April 26, 2004, as Applicant will be flying to the PTO from California. (If the Examiner is unable to conveniently reach Applicant, he may call Applicant's undersigned representative at 858 453 3574 (later than 11:00 A.M. P.D.S./T., please)).

3.1 Rejection of Claims Under the Newly Cited Reference of Schein

Possibly as developed in consultation with the Supervisory Primary Examiner, the Examiner gives at page 34 of the Office Action an apparently succinct analysis of the newly-cited reference of Schein to the present rejection of (at least) claims 1-21, 27, 35, 41-42 and 50.

Fisher describes a display terminal user interface with ability to select and download over the Internet remotely stored surface finishes for local mapping onto a locally-displayed 3-D surface using a web browser plug-in. Schein teaches a system and method for transmitting and for using **2D** textural television schedule information -- and **not** the transmitting of a "perspective view" as is stated by the Examiner at page 34, lines 6, 8 and 10.

At best a combination of Fisher and of Schein might suggest that the **texture** of a locally-displayed 3-D surface (a perspective view) might be applied locally (i.e., at a client user computer) from **textural information** that is received from a remote computer (i.e., a server computer). However, when Applicant does have occasion to use **textural information** -- which is **not** the gravamen of Applicant's invention -- Applicant so uses (and claims to use) this textural information **oppositely** than is taught by Schein. Namely, as per Applicant's dependent claim 28:

> "28. The interactive method for selling furnishings according to claim 24 further comprising:
> wherein the originating at a server is further of (9) a set of available textures and colors;
> wherein the first communicating from the server upon a digital communications network to the client is further of the (9) set of available textures and colors;
> wherein the selecting at the client is further of a (9a) selected textures and colors from among the (9) set of textures and colors;
> wherein the second communicating from the client upon the digital communications network to the server is further of the (9a) selected textures and colors;
> wherein the generating at the server is further of the (7) static perspective view as textured and colored by the (8a) selected textures and colors; and
> wherein the third communicating from the server upon the digital communications network to the client is of the

generated (7) static perspective view as textured and colored by the (8a) selected textures and colors."

In other words, Applicant **selects** from among available textures and colors at his client (user) computer, but **applies** the selected texture(s) in the rendering of the desired photorealistic image at the server computer.

The Examiner (and possibly also the Supervisory Examiner) apparently do not perceive **why** things relevant to Applicant's ultimate generation of "a three-dimensional object that can exist in the real world located within, surrounding, or in front of, a three-dimensional scene that can also exist in the real world" (claim 1), preferably at **photo-realistic quality** (witness the quality of the attached color image) are happening **where** Applicant claims. Without this understanding -- this "touchstone" of Applicant's invention -- it is understandable that the Examiner (and possibly also the Supervisory Examiner) cannot readily perceive why Fisher and Schein together do not somehow broadly suggest Applicant's client-server photorealistic image rendering invention.

(Indeed, at the terminal line 11 of page 34, it is suggested that Applicant's terminal has "limited memory". This has nothing to do with Applicant's claimed method, and is even unlikely to be true in relation to the pixel/bit size of the ultimate image.)

The **reason** why Applicant does, and claims to do, certain steps at the client, and certain other steps at the server -- in order to generate said image of "a three-dimensional object that can exist in the real world located within, surrounding, or in front of, a three-dimensional scene that can also exist in the real world" -- is quite simple: Applicant's photo-realistic rendering system requires much more computing power then is commercially-available from a single or even a dual processor personal computer **if** renderings of the desired resolution and image quality are to be processed **quickly**. At present many processors interconnected in a cluster are best used to speed the

rendering calculations required for photorealism, making a photorealistic image in some tens of minutes. The attached photo-realistic image (of completely synthesized 3D objects in a completely synthesized 3D scene) took several hours on a state-of-the-art (circa 2004) single dual-processor Apple G5 computer to produce.

The enclosed image, and indicated process, might clearly be useful to a prospective purchaser of furnishings. The powerful and expensive cluster of computers, and also the extensive (and proprietary) software, that are together capable of remotely and rapidly generating this photorealistic image for this prospective purchaser, should not be left idle in a furniture store for long periods between customers as this would be economically infeasible. Alternatively, to such extent as this remote computer system resource is made affordable by being shared by distributed to sale sites (e.g., retail stores), then it will be of sufficient capacity to **timely** generate a useful, and desirable, photorealistic image for any customer that may desire to use such a photrealistic image in selecting (real) furnishings for a (real) room.

Thus the "touchstone" of Applicant's claimed invention (as will be completely demonstrated in the Examiner Interview) is that Applicant does, and claims to do, (1) those processes that should be done (and that must be done) at the client computer(s), while letting (2) a considerably powerful, central, server computer or cluster of computers that are shared among many clients (i.e., many retail stores and/or interior designers) (out of practical economic necessity) exercise such sophisticated imaging software, and perform such processing, as permits of the rapid generation of photorealistic images.

3.2 <u>Patentable Distinction of Applicant's Invention as Claimed Over Fisher in View of Schein</u>

Accordingly, Applicant teaches and claims a method and

system for the remote rendering, on high-powered clusters, of customer-selected **3D** objects in **3D** scenes, with the remotely-rendered image transmitted for viewing on a local display terminal over a network. As demonstrated below, this invention was conceived for a different purpose then that of Fischer, and is novel and non-obvious (as claimed) over the reference art taken in any combination.

Applicant teaches (and sometimes claims) that the preferred embodiment of his invention provides on-demand in-context photo-realistic visualization of complex interior designs "of the customer's own choosing" using display terminals in retail store locations. As such photo-realistic image rendering is extremely computing intensive, a shared cluster of computers, or a super-computer is required. However, since it is not economically feasible to install and maintain such systems at each retail store location, Applicant teaches and claims a method and system that involves image **specification** at a local (client) computer, but image **rendering** on a shared remote computing cluster (i.e., the server).

In contrast, Fisher describes that the preferred embodiment of his or her invention is to allow the local rendering, on ordinary personal computers, of images incorporating a texture selected and then downloaded over the Internet, from a single remote vendor-maintained library of textures, at time-of-use, to promote the Internet sales of furniture or display a customized catalog image.

The purpose of Fisher's method and system being different from Applicant's, it can be understood that the showing of Fisher and Schein in combination neither teaches nor suggests Applicant's claimed invention. This is because Fisher shows only a graphical user interface, and the remote location of surface finish samples "associated with a network address of data defining a surface finish" -- without reference to any such image rendering method as is claimed by Applicant. This showing of

Fisher's invention is because his system was conceived to support the Internet sale or promotion of individual furnishings to millions of consumers utilizing conventional Internet-connected personal computers, and not to support the photo-realistic visualization of complex interior designs in retail stores as is taught (and variously claimed) by Applicant.

Fisher's method and system do not involve remote rendering of any kind. Neither does Schein's.

Schein describes a method and system for presenting textural television schedule information. This does not involve on-demand 3D rendering or perspective views -- let alone photo-realistic image rendering. Since Fisher's system has nothing to do with television, and Schein's system has only to do with television, the combination of these two references is awkward. (Indeed, both systems appear to have been conceived for entirely different purposes, for use in entirely different markets.) However, even insofar as the references **are** combined, as explained above, they suggest only that textural information should be applied at the client computer -- **opposite** to what Applicant teaches and claims.

Although Applicant recognizes that he must distinguish his invention as **claimed** over the reference art of Fisher, and all other, as **taught**, Applicant finds it interesting to note that each and every one of Fisher's **claims** directly or indirectly contains the phrase "wherein each of the surface finish samples is associated with a network address of data defining a surface finish".

Applicant teaches, and occasionally claims, the use of surface finish samples, or texture maps, devoid of such network address, **because** unlike Fisher's system, such maps are not downloaded to the client computer from a server at selection and/or at render-time.

Without again going into the specific language of each of Applicant's many claims (as was done upon the Amendment response to the previous Office Action, and as may be done again upon the

occasion of the Examiner Interview to such extent as the Examiner then desires), Applicant's method and system **as claimed** is generally patentably distinct from the system of Fisher combined with any and all other of the art of reference **because** Applicant's **claimed** invention addresses a different and more complex problem: photo-realistic rendering for complex interior design visualization. In Applicant's claimed system(s) and method(s) for realizing a solution to this certain processes, or steps, are generally claimed to be accomplished at certain locations -- information regarding these steps and processes being appropriately interchanged -- in a manner that is neither taught nor suggested by the art of reference taken in any combination.

In particular, and at the risk of being repetitious, Fisher shows **only** a graphical user interface design to support the Internet sale of furniture or a method for displaying an Internet catalog of furniture with specified surface finish. Meanwhile Schein's system is involved with textural information transmission across a digital communications network, and **not** 3D image rendering. This is very different than, and does not even colorably teach or suggest,

> "....[P]roducing at a first computer upon a digital communications network
> (1a) a 3D model of the background, or, equivalently, (1b) precursors of the 3D background model, or, equivalently, (1c) one or more related 2D views of the background scene suitable to serve as precursors of the 3D background model,
> (2) associated dimensional information of the particular 3D scene, and
> (3) a selected suitably-real-world object; and
> transmitting from the first computer upon the digital communications network the information (1)-(3);
> receiving at another, second, computer upon the digital communications network the information (1)-(3);
> deriving in the second computer (4) a 3D background model of the represented and selected 3D background scene; and
> combining in the second computer the information (1)-(3) and the (4) derived 3D background scene model to assemble in consideration of (5) object-based rules as to how the

selected 3D object exists within the 3D scene, to produce (6) a 3D perspective view of the selected object properly scaled, located and oriented relative to the 3D scene; and then

transmitting from the second computer upon the digital communications network the (6) perspective view; and receiving at the first computer upon the digital communications network this (6) perspective view; and

displaying at the first computer this (6) perspective view;

wherein, given a particular 3D scene with which is associated a 3D model, and a selected object with which is associated a selected 3D model, and location of the 3D object within the 3D scene, permits generation of a 3D perspective view of the selected suitably-real-world 3D object, properly scaled, within the selected suitably-real-world 3D scene;

wherein image selection made interactively over a digital network transpiring entirely in 2D supports the generation of a 3D perspective view showing a 3D object located and oriented within a 3D scene." (Claim 1)

3.3 Detail Argument of the Patentability of the Further Claims

The following argument(s) of this section 3.3 substantially correspond to the same arguments that were within Applicant's Amendment response to the First PTO Office Action, altered as necessary based on the Examiner's new basis of rejection.

3.3.1 Rejection of Claim 2

Applicant's Claim 2 is dependent upon Applicant's claim 1, which, as demonstrated above, is neither taught nor suggested by Fisher in view of Schein.

3.3.2 Rejection of Claim 3

Applicant's Claim 3 is likewise dependent upon Applicant's claim 1, which, as demonstrated above, is neither taught nor suggested by Fisher in view of Schein.

The fact that 2D renderings of 3D objects output to 2D displays are viewable as 2D objects is of no consequence. 3D scenes are necessary to permit a scene to be viewed at the desired perspective (i.e., as if the camera, or eye, was moved) and/or scale.

3.3.3 Rejection of Claim 4

Applicant's Claim 4 is likewise dependent upon Applicant's claim 1, which, as demonstrated above, is neither taught nor suggested by Fisher in view of Schein.

Fisher makes no mention of a method for rotating objects, only placing them. Further, Fisher describes a method of generating images on the first computer, while Applicant claims a method for generating them on the second computer.

3.3.4 Rejection of Claim 5

Applicant's Claim 5 is likewise ultimately dependent upon Applicant's claim 1, which, as demonstrated above, is neither taught nor suggested by Fisher in view of Schein.

Fisher describes a method of generating images on the first computer, using in some cases, models transferred from the second computer. Applicant claims the opposite: a method for generating images on the second computer, in some cases incorporating models transferred from the first computer.

This opposite teaching of Fisher is **not** overcome by Schein which is, curiously, **also opposite** to Applicant's claimed invention!

3.3.5 Rejection of Claim 7

Applicant's Claim 7 is likewise ultimately dependent upon Applicant's claim 1, which, as demonstrated above, is neither taught nor suggested by Fisher in combination with Schein.

As just stated, Fisher describes a method of generating images on the first computer, using in some cases, models transferred from the second computer. Applicant claims the opposite: a method for generating images on the second computer, in some cases incorporating models resident on the second computer.

3.3.6 Rejection of Claim 13

Applicant claims in his claim 13 a method for generating a scene image at a (second) server computer, based (at least in part) on information transmitted from a first computer over a network. Fisher describes and shows a method for a fundamentally opposite situation: generating an image on a first computer which may incorporate objects or textures from a second computer. These methods are fundamentally different.

[The difference is not unimportant (although "importance" is not a criteria of patentability, and Applicant's claimed system and method need not be "importantly" different from Fisher and all other of the art of reference in order to be patentable. As explained in Applicant's specification, Applicant's system and method is preferably used to rapidly and timely render **photo-realistic images**. Doing so requires a lot of computer processing power, and always will. The photo-realistic image rendering is faster, and more cost effectively, performed on a powerful central computer or computer cluster that performs this task time-shared for many client computers than it is so performed on these client computers themselves.]

It is not true that "Fisher teaches generating at a client computer [over] a digital communications network containing one or more 2D images representing an associated[,] particular[,]

suitably[-]real[-]world 3D scene in which a 3D scene is a place[ed] where a suitably real world 3-D object can exist (Fig. 5; col. 5; lines 50-62)."

Applicant claims a method for generating, at the client computer, a preview image, the specification for which are then transmitted to the server computer, where the final perspective view image is generated, and then returned to the first computer. (It is presumably **not** necessary to quote claim 13 to the Examiner within this argument; the claim may readily be referenced, and should be clear.) Fisher does **not** describe rendering or image generation on a second computer.

It is not true that "Fisher teaches placement and rotational information regarding where and what position attitude the selected 3-D object represented by the selected iconic image is to be placed within the selected 3-D scene" (fig. 5; col. 5; lines 15-23). This is because Fisher's methods do not involve server-based image generation.

It is not true that "Fisher teaches transmitting from the first computer, using the digital communications network, information for the previous steps (fig. 5; col. 5; lines 40-62). This is indeed what Applicant claims. However, since Fisher describes that all image generation occurs on the first computer, Fisher's method does **not** involve the transmission of information from the first computer, for use by a second computer, in generating an image on the second computer.

It is not true that "Fisher teaches receiving at another or second computer information data from the previous steps with photographically or virtually derived 3D model corresponding to the represented and selected 3-D scene (fig. 5m; col. 5; lines 28-32)." Fisher neither teaches nor suggests methods for receiving any such information at a second computer as is necessary for generating images on the second computer -- and as is claimed by Applicant. This is because Fisher provides that all images are generated on the first computer!

Schein neither teaches nor suggests anything to overcome this deficiency.

3.3.7 Rejection of Claims 14, 15, 16, 17 and 21

Applicant's claims 14, 15, 16, 17 and 21 are ultimately dependent upon Applicant's claim 13, which, as demonstrated above, is neither taught nor suggested by Fisher in view of Schein.

3.3.8 Rejection of Claims 22-25, 28-34, 36-40, 43-49 and 51

Claims 22-26, 28-34, 36-40, 43-49 and 51 were rejected under 35 U.S.C. §103(a) as being unpatentable over the reference art of Fisher in view of the reference of Miodonski.

Miodonski concerns data structures as may produce three-dimensional (3D) images. The relationship of this reference to Fisher and, more importantly, to Applicant's claimed invention, is uncertain.

The Examiner is perhaps drawn to the Miodonski reference simply because of the occurrence of the term "3D" in Applicant's designated claims. The fact that 2D can be produced of 3D objects, including real-world objects, is not novel. Applicant's claimed method go to **where**, and **how**, these images are produced, and for what purpose(s).

Claims 22 specifies "an interactive method of **promoting and selling** real-world objects" (which admittedly has much to do with image rendering and production over a network). However, just as with application of the primary reference of Fisher to previous claims commencing at claim 1, application of the reference art of Fisher combined with that of Miodonski does nothing to teach or suggest, inter alia, the claimed **locations** where Applicant's quite specific models and images arise, and are used. (It is deemed unnecessary to quote from claim 22, which is replete with quite specific references to **where** things arise, and happen.)

Claims 23-25 and 28-34 and 36 are ultimately dependent upon claim 22, and are patentable for the same reasons.

Claim 37 again specifies an "interactive method of promoting and selling real-world objects" conducted between a server (computer) and a client (computer) upon a digital communications network in a manner that is neither taught nor suggested by any of the art of reference taken in any combination. In particular, operations are done at certain locations, and communicated in certain directions, in a certain sequence.

Claims 38-40, 43-49 and 51 are ultimately dependent upon claim 37, and are patentable for the reasons stated above: namely, the prior art of Fisher and Miodonski does **neither** teaches nor suggests Applicant's claimed performance of operations at certain locations and communications in certain directions, all in a certain sequence.

Merely reciting the clauses of Applicant's claims and stating "Fisher teaches" does **not** make this true -- see the arguments regarding claim 1, et seq. above.

3.3.9 Rejection of Claim 35

Claim 35 was rejected under 35 U.S.C. '103 as being unpatentable over the reference art of Fisher in view of Miodonski further in view of the reference art of Ringland, et al.

Ringland, et al. deals with the selection of (image) patterns and colors by spectrophotometric analysis.

The Examiner's point is taken insofar as the Examiner wishes to cite Ringland. et al. as suggesting that various patterns, colors, etc. of paints, stains, swatches, or any "real physical sample of something in the generated and displayed 3D image of the room with furnishings" (claim 32) might reasonably be imaged.

However, Ringland, et al. does nothing to overcome the deficiencies of Fisher and Miodonski to teach or suggest **each** of Applicant's quite specific claiming (see, e.g., claim 22) of (1) where, (2) how, (3) in what sequence and (4) to what effect images are produced.

3.3.10 Rejection of Claims 6 and 8-11

Claims 6 and 8-11 were rejected under 35 U.S.C. '103 as being unpatentable over the reference art of Fisher in view of Schein further in view of the reference art of Gever, et al.

Gever, et al. show the programming of animated objects including stick figures.

The Examiner apparently misconstrues the word "model". A "model" is not a "doll", or "stick figure". A "model" is any of a data, and/or mathematical, and/or outline from which an image may be constructed. It is a sort of "wire-frame skeleton" to a later-constructed image.

The reference art of Gever, et al. may suggest some of the attidinal and rotational capability that Applicant applies, and claims (within selected ones of claims 8-11) to apply, to his images. But the reference art of Gever, et al, does noting, as explained in section 7.1 above, to overcome the deficiencies of Fisher, and Fisher in combination with any other of the art of reference, to teach of suggest Applicant's quite specifically claimed "computerized method of generating and rendering **over a digital communications network** a perspective view of a three-dimensional object...." (claim 1).

The Examiner is in general rather more concerned with image formation -- which is admittedly highly advanced in the computer arts -- than Applicant's purposes, and claimed methods, for economically, **efficiently and effectively** rendering views of a "three-dimensional object that can exist in the real world located within, surrounding, or in front of, a three-dimensional scene that can also exist in the real world" "**over a digital communications network**" (claim 1). Applicant's images are not, by and large, revolutionary: it is how (and where, and why, and in what sequence, etc.) these images are rendered in a distributed, shared, networked, environment that is novel, and patentable.

3.3.11 Rejection of Claims 18-20

Claims 18-20 were rejected under 35 U.S.C. '103 as being unpatentable over the reference art of Fisher and Schein in view of Izumitani.

Izumitani describes the computerized fitting of eyeglasses.

Insofar as such a system teaches or suggests that "a prospective purchaser of the real-world eyeglasses may be rendered a perspective view of the eyeglasses properly located and oriented upon, and fitted to, the purchaser's own human head" (claim 18), the Examiner's point is taken.

However, Izumitani does nothing to overcome the deficiencies of Fisher (and Fisher in combination with any and all other of the art of reference) to teach or suggest of Applicant's quite specific claiming of **where** and **when** transpires "producing...; transmitting...; receiving...; deriving...; and combining...; and then transmitting...; and receiving...; and displaying" as is set forth in claim 1 so that "image selection made interactively **over a digital network** transpiring entirely in 2D supports the generation of a 3D perspective view showing a 3D object located and oriented within a 3D scene".

The Examiner is urged to regard the verbs of Applicant's claim 1. Some of these verbs -- producing, deriving, combining and displaying -- sound like image generation. But other of these verbs -- transmitting, receiving; and then transmitting and receiving -- do **not**. Exactly where, and how, and when Applicant proceeds to formation of an "image... **interactively over a digital network**" (claim 1) (boldface added) is fully as important to Applicant's invention as are the mechanics of image generation.

4. Summary

The present amendment and remarks have overcome and discussed each of the bases for the rejections presented in the Office Action. No new subject matter has been introduced by the present amendment.

In consideration of the preceding amendment and accompanying remarks, the present application is deemed in condition for allowance. The timely action of the Examiner to that end is earnestly solicited.

Applicant's undersigned attorney is at the Examiner's disposal should the Examiner wish to discuss any matter which might expedite prosecution of this case.

Sincerely yours,

William C. Fuess
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CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this AMENDMENT and the documents referred to as attached therein are being deposited with the United States Postal Service in an envelope as "Express Mail Post Office to Addressee" mailing Label Number EU828759212US addressed to the: Mails Stop Non-Fee Amendments - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date written below.

April 16, 2004	William C. Fuess	
Date	Typed Name of Person Mailing Correspondence	Signature of Person Mailing Correspondence